



Scotch-Weld™

Surface Insensitive Instant Adhesives

SI5 • SI40 • SI100 • SI1500 • SI Gel

Technical Data

March, 2010

Product Description

3M™ Scotch-Weld™ Surface Insensitive Instant Adhesives bond rough, porous, contaminated, and acidic substrates including wood, cardboard, veneer, fabric, cork, and leather.

Specific Features

- 3M™ Scotch-Weld™ Surface Insensitive Instant Adhesive SI5 (formerly SB20) is a very low viscosity, wicking grade surface insensitive cyanoacrylate for bonding a wide variety of substrates including wood, paper, cardboard, leather, and fabric. It has been tested and passed the requirements of Commercial Item Description A-A-3097, Type II, Class 1 (formerly MIL-A-46050C).
- 3M™ Scotch-Weld™ Surface Insensitive Instant Adhesive SI40 (formerly SB95) is a low viscosity surface insensitive cyanoacrylate that is used where very fast cure speed is desired. It is recommended for use on close-fitting parts and smooth, even surfaces. It has been tested and passed the requirements of Commercial Item Description A-A-3097, Type II, Class 1 (formerly MIL-A-46050C).
- 3M™ Scotch-Weld™ Surface Insensitive Instant Adhesive SI100 is a low viscosity product that will bond a wide variety of materials including plastic, rubber, wood, paper, leather, and metals with a very fast cure speed. It is recommended for use on close-fitting parts and smooth, even surfaces.
- 3M™ Scotch-Weld™ Surface Insensitive Instant Adhesive SI1500 is a surface insensitive cyanoacrylate that has high viscosity and has excellent gap filling capabilities. It relies less on surface moisture for cure speed than standard cyanoacrylates.
- 3M™ Scotch-Weld™ Surface Insensitive Instant Adhesive SI Gel (formerly SB09) is a fast curing, very high viscosity, gap filling cyanoacrylate. Its gel formation can be used for bonding poorly mating components and for porous substrates such as china and other ceramics and can be used on vertical surfaces as it will not drip or slump.

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Typical Uncured Physical Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

	3M™ Scotch-Weld™ Surface Insensitive Instant Adhesives				
	SI5	SI40	SI100	SI1500	SI Gel
Color	Clear	Clear	Clear	Clear	Clear
Base	Ethyl	Ethyl Hybrid	Ethyl Hybrid	Ethyl Hybrid	Ethyl Hybrid
Appearance	Gel	Liquid	Liquid	Liquid	Liquid
Specific Gravity (g/ml)	1.06	1.06	1.06	1.08	1.10
Viscosity (cps)	2 - 5 ³	34 - 44 ⁵	80 - 120 ⁵	1,275 - 1,650 ⁴	50,000 - 90,000 ¹ 7,000 - 20,000 ²
Time to Handling Strength (sec)	15 - 35	2 - 20	3 - 20	5 - 60	3 - 60
Full Cure Time (hr)	24	24	24	24	24

¹ Brookfield RVT, 'T-spindle' C @ 2.5 rpm.

² Brookfield RVT, 'T-spindle' C @ 20 rpm.

³ U-Tube IC-C45.

⁴ Brookfield LVF, Spindle 3 @ 30 rpm.

⁵ ISO 3104/3105.

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	3M™ Scotch-Weld™ Surface Insensitive Instant Adhesives				
	SI5	SI40	SI100	SI1500	SI Gel
Temperature Range (°F)	-65 to 180	-65 to 180	-65 to 180	-65 to 180	-65 to 180
Gap Fill (in)	0.007	0.004	0.006	0.008	0.020
Tensile Strength (psi)	5,100 ⁶	4,900 ⁶	3,000 ⁷	3,000 ⁷	—
Overlap Shear Strength (psi)	2,900 ⁸	2,500 ⁸	—	—	2,900 ⁸

⁶ ASTM D2095.

⁷ ISO 6922.

⁸ ASTM D1002.

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Handling Information

Surface Preparation

For optimum strength structural bonds, paint, oxide films, oils, dust, mold release agents, and all other surface contaminants must be completely removed. However, the amount of surface preparation depends on the required bond strength and the environmental aging resistance desired by the user. Typical quick surface preparation would include wiping with a clean solvent (such as isopropyl alcohol*), abrading the surface with a clean fine abrasive, and then wiping again with a clean solvent to remove loose particles.

Directions for Use

1. Ensure that parts are clean, dry, and free from oil and grease.
2. An instant adhesive activator may be required if there are bonding gaps or porous substrate surfaces, if substrates are low surface energy plastics (e.g., polyethylene, polypropylene) or if substrates have acidic surfaces (e.g., paper, leather).
3. Bond speed is typically very fast so ensure that parts are properly aligned before dispensing.
4. Product is normally hand applied from the bottle. Apply sparingly to one surface and press parts firmly together until handling strength is achieved. As a general rule, as little cyanoacrylate as possible should be used. Over application will result in slower cure speed and lower bond strength.

Cured Bond Characteristics

1. Full bond strength will typically be achieved within a 24 hour cure time.
2. After curing, 3M™ Scotch-Weld™ Surface Insensitive Instant Adhesive bonds are suitable for use up to about 180°F (82°C). At 180°F (82°C) the bonds will be approximately 70% of the strength at room temperature and at 212°F (100°C) about 50% of full strength.
3. Cyanoacrylate bond resistance to most oils and solvents is excellent. Long term humidity, moisture, or water immersion may affect the strength of a cured cyanoacrylate bond depending on the substrates and the bond gap. Testing is recommended to evaluate the effect.

***Note:** When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and directions for use.

Storage

For short term storage (<30 days), keep adhesive in a cool (60°F to 80°F [16°C to 27°C]), dry place out of direct sunlight. Keep containers tightly covered and free of moisture. Refrigeration (40°F [4°C]) gives optimum long term storage stability.

Shelf Life

3M™ Scotch-Weld™ Surface Insensitive Instant Adhesives can be expected to have a shelf life of one year from the date of shipment from 3M when stored under refrigerated conditions.

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Precautionary Information

Refer to Product Label and Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information, call 1-800-364-3577 or (651) 737-6501.

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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ISO 9001:2000

This product was manufactured under a quality system registered to ISO 9001:2000 standards.



Industrial Adhesives and Tapes Division

3M Center, Building 225-3S-06
St. Paul, MN 55144-1000
800-362-3550 • 877-369-2923 (Fax)
www.3M.com/industrial



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Printed in U.S.A.
©3M 2010 78-9236-7165-1 (3/10)